HT-466

DIRECT-DRIVE AUTOMATIC TURNTABLE

INSTRUCTION MANUAL

This HITACHI precision direct-drive turntable is designed to meet top performance standards for audiophiles who wish to enjoy superb sound reproduction.

KEY TO ILLUSTRATIONS

① Platter
② Platter mat
③ Record guide
④ POWER switch
⑤ POWER indicator
⑥ QUARTZ LOCKED indicator
⑦ SPEED select switch
⑧ REPEAT switch
⑨ UP/DOWN (tonearm) switch
⑩ START/CUT switch
⑪ SIZE selector
⑫ Head shell
⑬ Arm rest
⑭ Tonearm
⑮ ANTI-SKATE knob
⑯ Scale ring
⑰ Balance weight
⑱ EP ADAPTOR
⑲ HEAD SHELL STAND

SAFEGUARD

Electrical energy can perform many useful functions. This unit has been engineered and manufactured to assure your personal safety. Improper use can result in potential electrical shock or fire hazards. In order not to defeat the safeguards, observe the following instructions for its installation, use and servicing.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION: TO PREVENT ELECTRIC SHOCK, DO NOT REMOVE SCREWS. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

FEATURES

1. **Unitorque motor**
   The newly developed flatten type non-rectification DC servo drive motor "unitorque motor", which is completely different in basic structure from the conventional direct drive motor, is employed. Torque of this "unitorque motor" is, by definition, constant, so it rotates smoothly and quietly, and provides high performance S/N ratio and wow/flutter characteristics.
2. **Quartz control (quartz lock PLL servo)**
   The phase of the oscillation frequency which is always constant and generated by the quartz oscillator and the phase of the detection frequency from the speed detector are compared, and by controlling the revolution speed, the load characteristics and revolution speed accuracy are enhanced. This circuit employs a one-chip MOS LSI.
3. **Handy fully automatic mechanism (with manual priority mechanism)**
   This mechanism allows play to start automatically just by depressing the START/CUT switch in accordance with the size of the record. You can therefore listen to the sound from the disk without having to go through a number of troublesome operations. If you want to listen to another track on the disk, the handy manual priority mechanism allows play to start as soon as you bring the tonearm to a position above the track you want to hear.
4. **Electronic return detection mechanism (PHOTO-SENSOR SYSTEM)**
   A no-contact electronic system is used for the automatic return detection upon completion of disk play. This means that no lateral force is applied to the stylus tip and that there is no ensuing distortion.
5. **Two-motor system with improved performance**
   A DC motor is used for the fully automatic mechanism in addition to the motor that drives the platter, and this combination serves to maintain a stable platter revolution.
6. **Highly sensitive tonearm with gimbal support and head shell containing glass fibers**
   A gimbal support system is adopted for the bearing construction of the tonearm for reduced rotational resistance and a superb traceability with a light tracking force performance. In addition, a very rigid and lightweight head shell containing glass fibers is incorporated, and a resonance-immune construction using a viscoelastic material is employed for the balance weight support. These features combine to suppress the vibrations which are harmful to the sound quality.
7. **Front panel operation with soft push switches**
   Soft push switches are featured on the control panel at the front for easy operation enabling handling even when the dust cover is in place.
8. **Structure resistant to howling**
   The turntable employs vibration-resistant feet which combine rubber with a spring, and this feature makes for a construction which is extremely resistant to howl.
9. **Viscous damped arm lifter never damages stylus tip**
   By using the viscous damped arm lifter for lifting/lowering the stylus, there is little danger of damaging the record or stylus tip.
10. **Easily removable dust cover**
    The dust cover can be detached when using it in a narrow place such as on a shelf, etc.

INSTALLATION

Open the package and take out the platter carefully. Be sure to remove all the components from packaging.

1. Take out the platter and platter mat packed separately: insert the platter into the record guide and fit the platter mat on it.
2. Place the balance weight, which is packed separately, into the rear of tonearm while turning it counterclockwise.
3. When a cartridge is not attached, install your cartridge to the head shell. Insert the head shell into the tip of the tonearm and fix it with a locking nut.

(See Fig. 1)

Ⓐ Platter
Ⓑ Platter mat
Ⓒ Record guide
Ⓓ Balance weight
Ⓔ Tonearm
Ⓕ Cartridge
Ⓖ Head shell
Ⓗ Locking nut
Ⓘ EP ADAPTOR

A cartridge may or may not be provided depending on the destination.

CONNECTIONS

Refer to Fig. 2 for the connections.

IMPORTANT FOR U.K.:
WARNING: This apparatus must be earthed. The wires in this mains lead are coloured in accordance with the following code:

Green and Yellow	: EARTH
Blue	: NEUTRAL
Brown	: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows. The wire which is coloured GREEN and YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol ⏚ or coloured GREEN or GREEN and YELLOW.
The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.
The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

ADJUSTMENTS BEFORE USE

Perform the tracking force and anti-skating adjustments before operating your turntable.

TRACKING FORCE ADJUSTMENT
(See Figs. 4, 5)
The tracking force adjustment should be done before playing. The tracking force must be adjusted to the recommended value as shown on the instruction sheet of the cartridge.

1. Detach the tonearm from the arm rest, and set the ANTI-SKATE knob '0' to the anti-skating index mark. **(See Fig. 4)**
2. Rotate the balance weight until the tonearm is balanced evenly. **(See Fig. 5)**

   ⓐ **Tonearm is not balanced properly. Balance weight end is too heavy.**
   ⓑ **Tonearm is perfectly balanced.**
   ⓒ **Tonearm is not balanced properly. Cartridge end is too heavy (comes in contact with arm guide).**

3. Secure the balance weight so that it will not rotate. Rotate the scale ring so that its '0' is aligned with the tracking force index line.
4. Rotate the balance weight in the direction of the arrow in the figure and adjust to the recommended value of the cartridge's tracking force. **(See Fig. 4)**

   Ⓙ **Arm rest**
   Ⓚ **ANTI-SKATE knob**
   Ⓛ **Anti-skating index mark**
   Ⓜ **Tracking force index-line**
   Ⓝ **Balance weight**
   Ⓞ **Tonearm**
   Ⓟ **Scale ring**

ANTI-SKATING ADJUSTMENT
Match the ANTI-SKATE knob to the anti-skating index mark in accordance with the tracking force of the cartridge used.
(See Fig. 4)

Ⓚ **ANTI-SKATE knob**
Ⓛ **Anti-skating index mark**

CONTROLS

④ POWER switch
When this switch is depressed (ON) (⏍), the power is supplied to the turntable and the POWER indicator ⑤ lights up. The switch is released to turn off the power. Always keep the power off when not using the turntable.

⑥ QUARTZ LOCKED indicator
This indicator lights to show that the quartz lock has engaged and that the platter is rotating at the rated speed.

⑦ SPEED select switch
The speed is changed to 33-1/3 or 45 rpm.

⑧ REPEAT switch
Depress this switch (ON) (▭) for repeat disk play. The tonearm ⑭ returns to the arm rest ⑬, and then play automatically starts again.

⑨ UP/DOWN (tonearm) switch
This switch is normally kept in the DOWN (□) position. When it is set to UP (▭) during record play, the tonearm rises from the record and play is interrupted. When the switch is returned to the DOWN (□) position, the tonearm descends onto the record and play resumes.

⑩ START/CUT switch
For automatic play, detach the arm rest clamp from the tonearm ⑭ and depress this switch. The platter ① will now start to rotate, the tonearm ⑭ will move across to the record, and automatic play will begin.

To stop play halfway across a record (Auto-cut)

Push the START/CUT switch ⑩, the tonearm ⑭ automatically returns to the arm rest ⑬.

⑪ SIZE selector
Set this knob to the size of the record you intend to hear with automatic play. Set it to 12" (30) for a 30 cm LP, 10" (25) for a 25 cm LP and to 7" (17) for an EP.
With manual play, it does not matter where this knob is set.

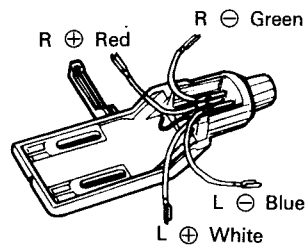
Cartridge replacement
Replace the cartridge following the procedure below. After the cartridge has been replaced, be sure to adjust the tracking force, the anti-skating and check the stylus descent position.
(Refer to page 5)

- **Replacing the cartridge with head shell**
  You can easily lock and detach the head shell by rotating the locking nut.
  (See Fig. 6)

  Ⓡ Tonearm
  Ⓢ Locking nut
  Ⓣ Cartridge fixing screw
  Ⓤ Cartridge
  Ⓥ Head shell

- **Cartridge installation or replacement**
  Perform installation or replacement of the cartridge as follows:

* The polarities and L, R channel of the lead wire of the head shell are shown in the figure below. The connection should be done according to the terminal indication of the cartridge.



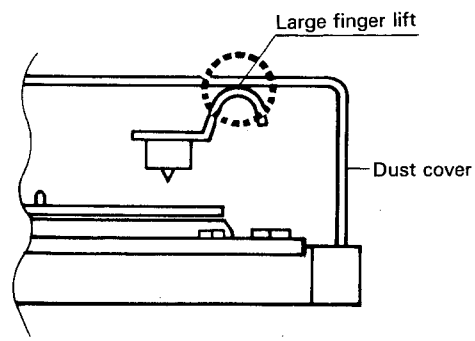
* Attach the cartridge to the head shell with cartridge fixing screws as shown in Fig. 7, 8. (Overhang adjustment)

Ⓦ Cartridge fixing screw
Ⓧ Cartridge
Ⓨ Head shell
Ⓩ Stylus tip

- **Stylus replacement**
  When sound becomes distorted or noisy, check the stylus to see whether it is worn out or not. If worn out, replace it with a new one.
  Refer to Fig. 10 when replacing stylus.

- **Adjustment of stylus tip height**
  When you have mounted or replaced the cartridge, keep the 6 — 9 mm clearance between the stylus and the record, with the record positioned on the platter. (Check that the arm guide is in the UP position.)
  If it is not possible to obtain this clearance, remove the cap and loosen the stylus tip height adjusting screw, then adjust the height of the arm guide.
  (See Fig. 4 and Fig. 9)

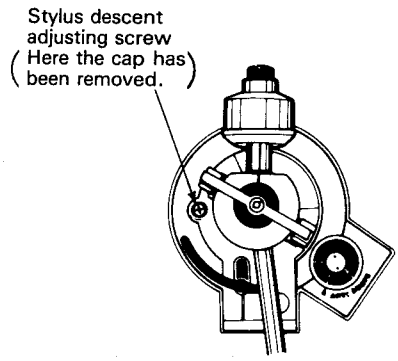
Ⓠ Stylus tip height adjusting screw
When you use the other type of head shell having large finger lift, please open or remove the dust cover to get normal automatic playing.

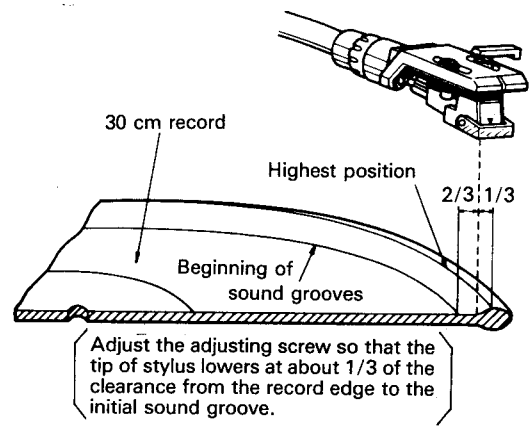


Adjustment of the stylus descent point

Adjust as follows, using a 30 cm LP.

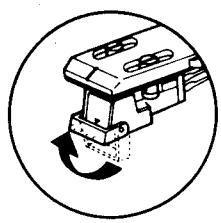
1. Remove the cap.
2. Perform the auto-in operation to check the descent point of the stylus.
3. Adjust the stylus descent adjusting screw with a screwdriver. If the stylus point is inside the disk, turn the adjusting screw leftward ↺, and if the point is outside the disk, turn it rightward ↻.
   The descent point of the stylus changes about 1.5 mm with every half-turn of the screw.
4. Repeat steps 2 and 3 to have the stylus descend to the position in the Figure.



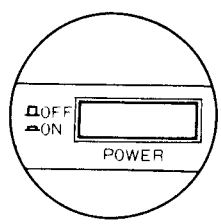

30 cm record
Highest position
2/3
1/3
Beginning of sound grooves
Adjust the adjusting screw so that the tip of stylus lowers at about 1/3 of the clearance from the record edge to the initial sound groove.

OPERATIONS

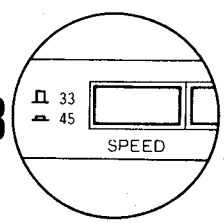
■ For automatic play (auto-in, auto-return)

1 

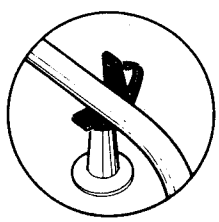
Turn the stylus guard.

2 

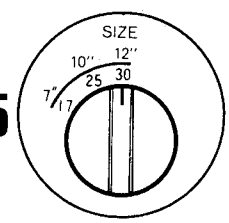
Depress the POWER switch ④ (ON) (⊓). The power is supplied to the turntable and the POWER indicator ⑤ lights up.

3 

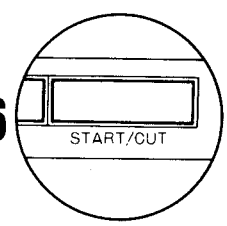
Depress the SPEED (⊓ 33, ⊓ 45) select switch ⑦ to the correct record revolution speed (33 or 45).

4 

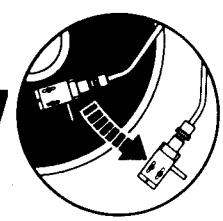
Remove the rest hook.

5 

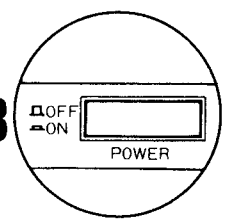
Set the SIZE selector ⑪ according to the record size.

6 

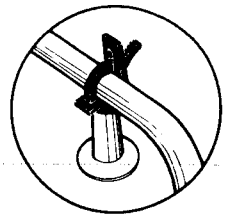
Push the START/CUT switch ⑩, then the platter ① starts rotating, the tonearm ⑭ is lowered onto the disk and play starts. (auto-in)

7 

When play is completed, the tonearm ⑭ automatically returns to the arm rest ⑬ and the platter stops.

8 

When you are not playing a disk, depress the POWER switch ④ and turn off the power. Always switch the power off when you do not intend to use the turntable.

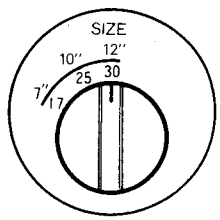
9 

Secure the rest hook to the tonearm.

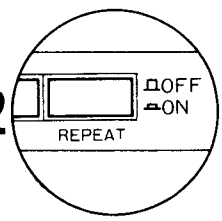
CAUTION

1. Remove the arm rest ⑬ clamp so that the tonearm ⑭ is able to move lightly when operated.
2. Set the SIZE selector ⑪ according to the disk size before automatic play.
3. Do not touch the tonearm ⑭ or selector while the tonearm ⑭ is moving.
4. The mechanism for auto-in, auto-return, and auto-repeat operates correctly when playing an IEC standard record. But if a non-standard disk is set to automatic play, the stylus tip may be damaged because the stylus descends outside the lead-in groove, or the tonearm may not return automatically to the rest. Play non-standard records manually.

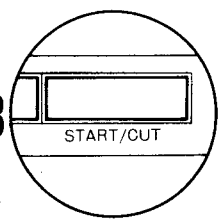
■ Repeat play (auto-repeat)

1 

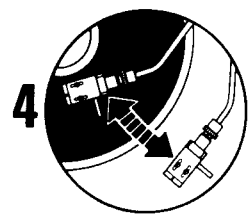
Set the SIZE selector ⑪ according to the record size.

2 

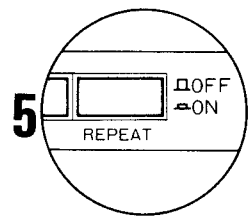
Depress the REPEAT switch ⑧ (ON) (⊓).

3 

Push the START/CUT switch ⑩, and the platter ① starts rotating, the tonearm ⑭ is lowered onto the disk and play starts. (auto-in)

4 

When play is completed and the tonearm ⑭ returns to the arm rest ⑬, the play operation will start again automatically. (Play can be repeated countless times, if so required.)

5 

To release the repeat play function, depress the REPEAT switch ⑧ (OFF). When play is completed, the tonearm ⑭ returns to the arm rest ⑬ and the platter ① stops.

CAUTION

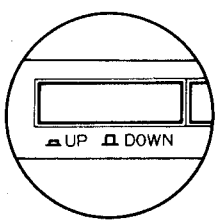
- You may not be able to perform repeat play operations with a disk that does not meet IEC standards.
- When depressing the REPEAT switch ⑧ during play, check that the SIZE selector ⑪ is set to a position which tallies with the disk's size, and then depress the switch (ON).

CAUTION

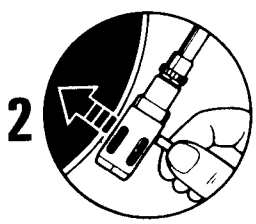
Some disks that do not conform to IEC standards cannot be operated by repeat play.

■ Manual play

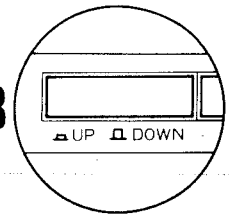
Operate manually to start disk play between tracks or to play a disk that does not conform to IEC standards.

1 

Set the UP/DOWN switch ⑨ to UP (⊓).

2 

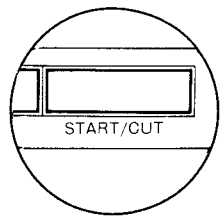
Move the tonearm ⑭ by hand to the desired starting position. (It does not matter which position the SIZE selector ⑪ is set to.)



3 Set the UP/DOWN switch ⑨ to DOWN (□). The tonearm now descends onto the disk and play begins.

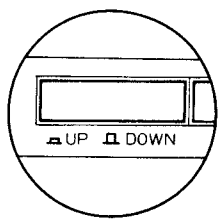
CAUTION
When playing a disk which does not conform to IEC standard, the tonearm may not return to the rest position. In this case, push the START/CUT switch ⑩.

■ Interrupting disk play (auto-cut)



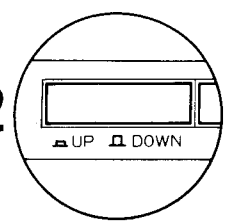
Depress the START/CUT switch ⑩. The tonearm returns automatically to the arm rest and the platter stops rotating. However, even when the auto-cut operation is performed (depress the START/CUT switch ⑩) during repeat play, the auto-repeat is not released and so first return the REPEAT switch to the OFF (□) position and then depress the START/CUT switch ⑩.

■ Interrupting play



1 Set the UP/DOWN switch ⑨ to UP (▭). The stylus rises gently from the record and play is interrupted.

CAUTION
Except when interrupting play, keep the UP/DOWN switch ⑨ at the DOWN (□) position.



2 When play resumes, set the UP/DOWN switch ⑨ to DOWN (□). The stylus tip descends gently onto the record and play resumes from virtually the same position as when play was suspended.

OPERATING PRECAUTIONS

- **Detaching and replacing the dust cover (See Fig. 3)**
  The dust cover can easily be detached and replaced.
  To detach, raise the dust cover, pull out the dust cover from the cabinet together with the hinges.
  To replace, follow the same procedure in reverse.
- **Chemical cleaning cloths and insecticides**
  Take care not to bring insecticides, benzine, thinners and other chemicals near the cabinet. Also remember that cleaning the cabinet with a chemical cleaning cloth or leaving such a cloth on the top of the cabinet may cause the paint to peel off and the cabinet to change color.
- **Howling**
  Cartridges are very sensitive and may pick up slight sound pressure or vibrations of the speaker coming along the floor or through the air — resulting in howling. Therefore, the location of your turntable is very important. Find a location which is very stable and free from vibration.
- **Induction Hum**
  This turntable utilizes a brushless DC servo motor to reduce inductive hum. If annoying inductive hum is heard, it can be caused by the electromagnetic field produced from the motors or transformers used in another device. Do not place the turntable near a device in which a motor or transformer is used. To prevent the turntable from being affected by the power transformer of your amplifier, receiver or tape deck, position the turntable on the opposite side of the power transformer.
- **Simultaneous use of tuner and turntable**
  Do not use the turntable while the tuner is receiving a program since this will result in interference.

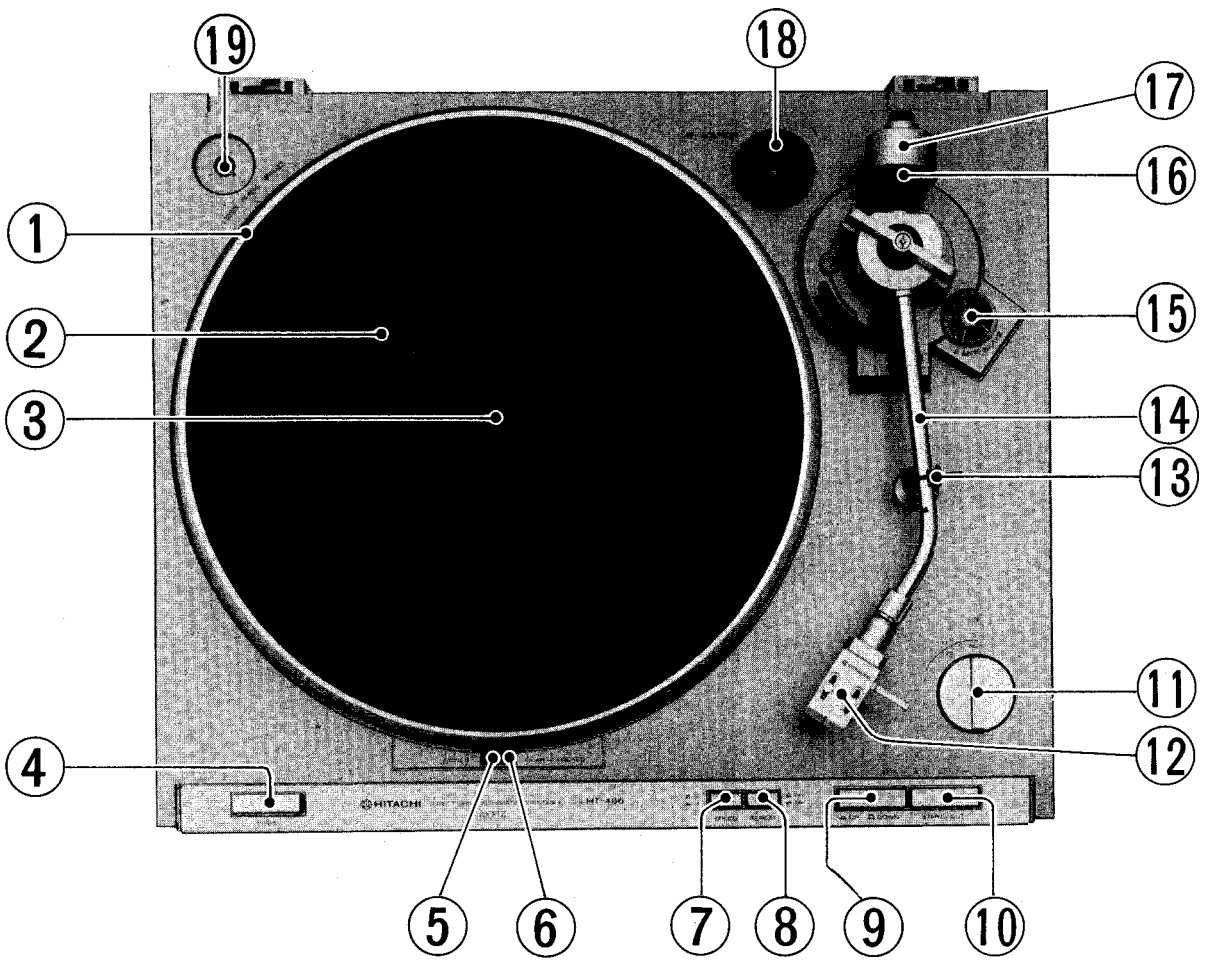
SPECIFICATIONS

Type	2-speed direct drive automatic system
Platter	Aluminum alloy die-cast, 310 mm outer diameter
Motor	Brushless, Slotless, Coreless DC servo "unitorque" motor
Speed	2 speeds; 33-1/3 and 45 rpm
Speed change system	Electronic change-over system
S/N	78 dB (DIN-B)
Wow and Flutter	0.025% WRMS
Speed deviation	0.003%
Speed drift (for time)	0.003%/hour
(for temperature)	0.003% (5 – 35°C)
Effective length	220 mm
Overhang	15 mm
Tracking error	2°
Lead wire capacitance	140 pF
Adjustable force range (scale)	0 – 3 g/1 turn of the balance weight (directly readable in 0.1 g steps)
Acceptable cartridge weight	4 – 10 g
When a HITACHI cartridge is attached.	
Cartridge	Dual magnet type (MT-30)
Frequency response	10 – 25,000 Hz
Output voltage	3 mV at 1 kHz 50 mm/sec.
Channel difference	1 dB at 1 kHz
Channel separation	20 dB at 1 kHz
Tracking force	1.5 – 2.5 g (recommended 2g)
Stylus tip	Diamond stylus (DS-ST30)
Power source	120 V 60 Hz for U.S.A. and Canada standard 220 V 50 Hz for Europe standard 240 V 50 Hz for U.K. and Australia standard 110–120/220–240 V 50/60 Hz for Asian and Latin American countries
Power consumption	5 watts
Dimensions	435 x 375 x 128 mm (17-1/8" x 14-3/4" x 5")
Weight	6.0 kg (13.2 lbs.)
Other devices	Auto-in, auto-repeat, auto-return, auto-cut, anti-skating, tracking force direct-reading balance weight, viscous damped cueing, power indicator, quartz locked indicator

Design and specifications subject to change without notice for further improvement.

HT-466

HITACHI



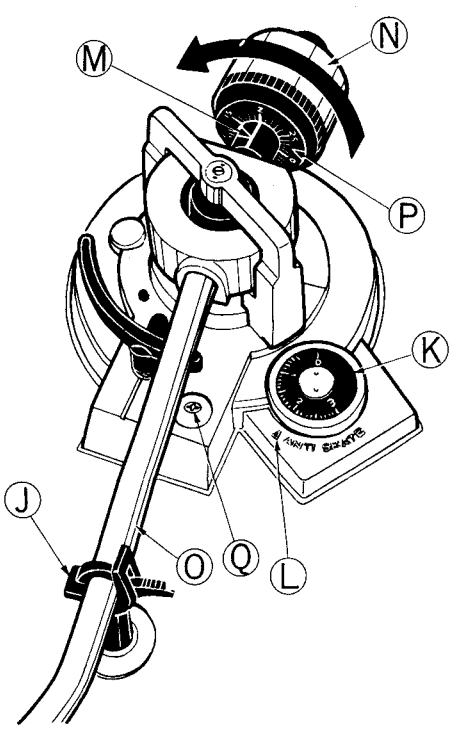


Fig. 4

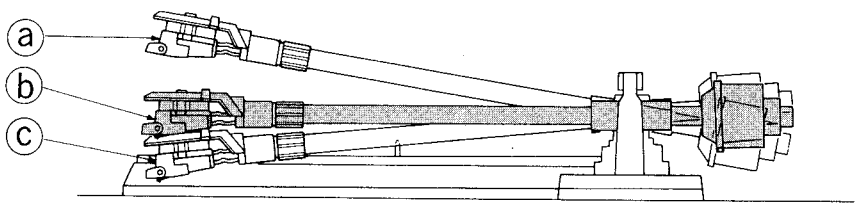


Fig. 5

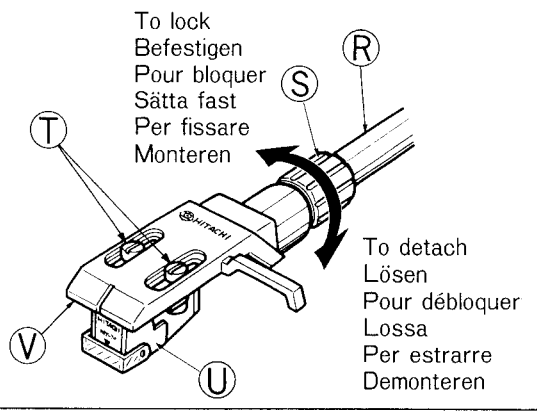


Fig. 6

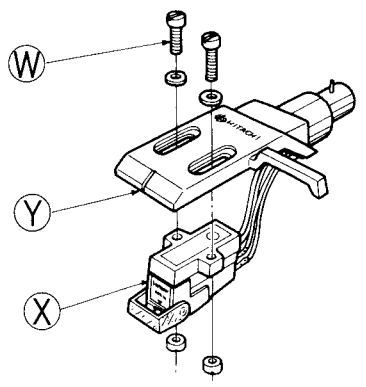
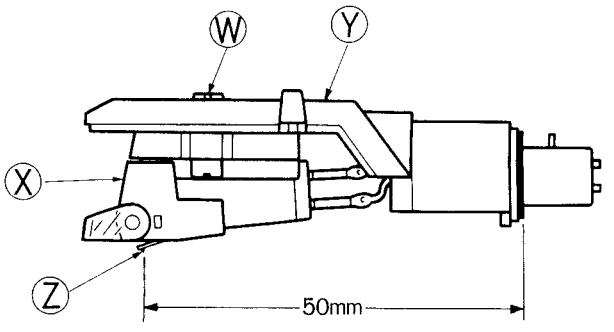


Fig. 7



(Actual size) (Verklig storlek)
(Originalgröβe) (Larghezza reale)
(Longueur réelle) (Werkelijke grootte)

Fig. 8

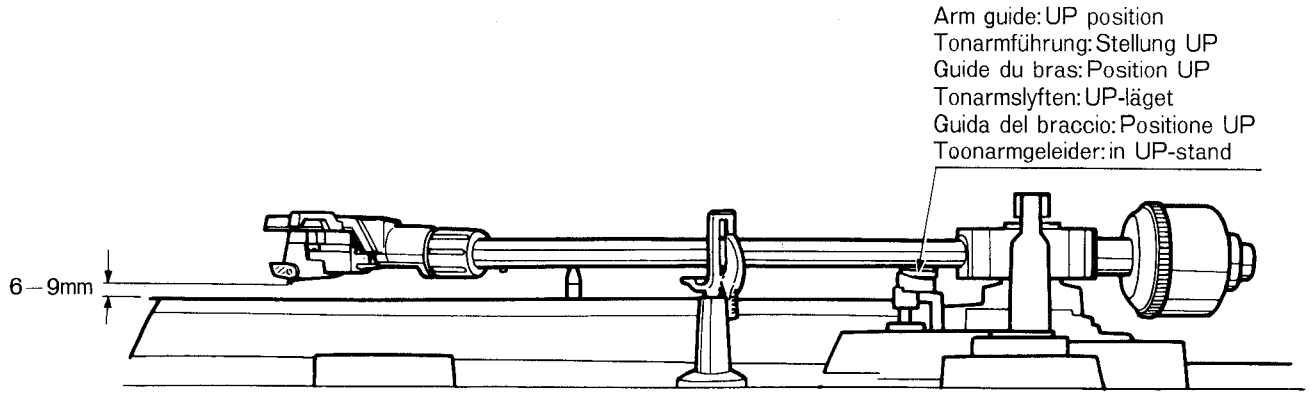


Fig. 9

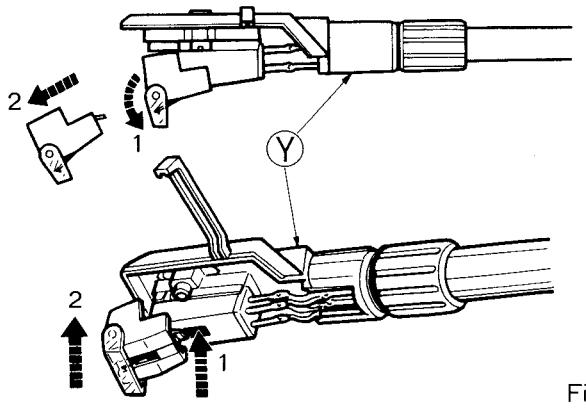


Fig. 10

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Fig. 2

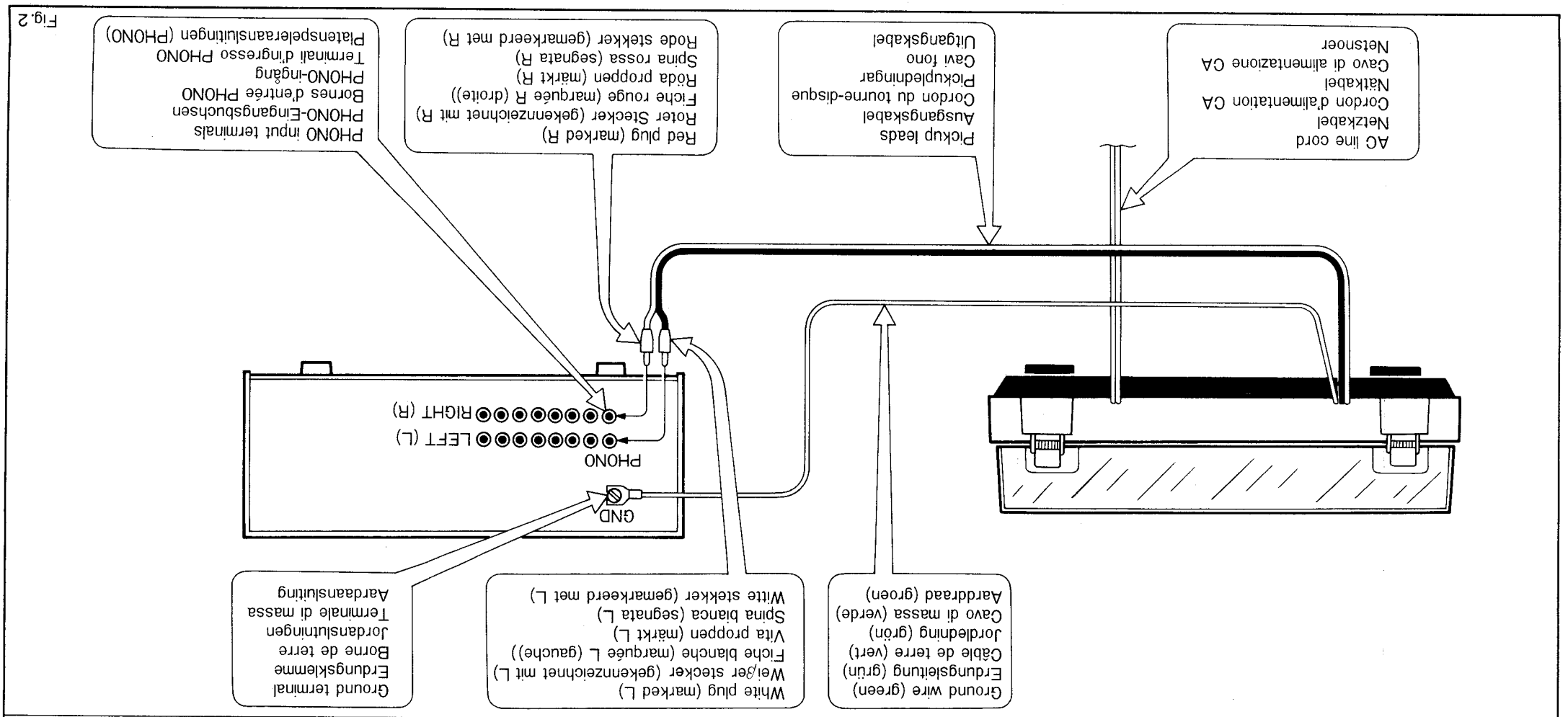

Fig. 1

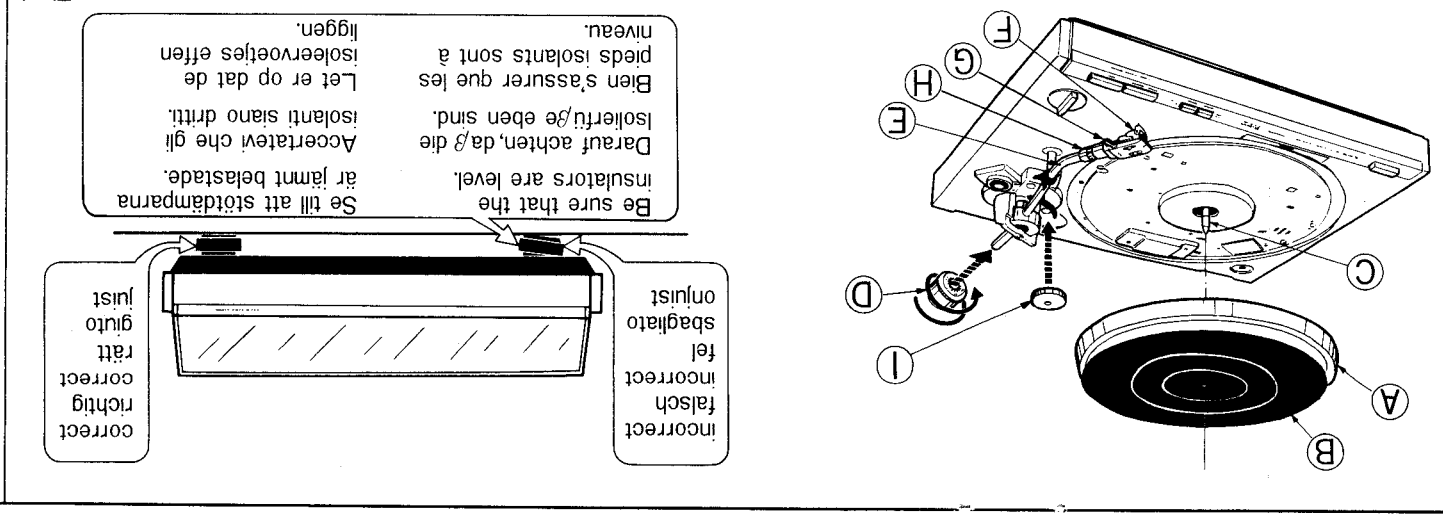

Fig. 3